

CLAIMS

1. An air conditioner for a vehicle: wherein
a first cold air passage through which
cold air flows and a first hot air passage through which
5 hot air flows are provided, in parallel with each other,
in a first air passage through which conditioned air is
discharged to a first zone in a vehicle compartment;
a second cold air passage through which
cold air flows and a second hot air passage through which
10 hot air flows are provided, in parallel with, each other
in a second air passage through which conditioned air is
discharged to a second zone in a vehicle compartment;
the first air passage comprises a first
cold air door for opening and closing the first cold air
15 passage and a first hot air door for opening and closing
the first hot air passage;
the second air passage comprises a second
cold air door for opening and closing the second cold air
passage and a second hot air door for opening and closing
20 the second hot air passage;
the temperature of air discharged from the
first air passage into the first zone is adjusted by
adjusting the proportion of the flow rate of cold air in
the first cold air passage with respect to the flow rate
25 of hot air in the first hot air passage by means of the
first cold air door and the first hot air door;
the temperature of the air discharged from
the second air passage into the second zone is adjusted
by adjusting the proportion of the flow rate of cold air
30 in the second cold air passage with respect to the flow
rate of hot air in the second hot air passage by means of
the second cold air door and the second hot air door;
the air flow rate in the first air passage
is controlled independently by changing the passage
35 opening area of the first air passage by means of the
first cold air door and the first hot air door while the
proportion of the flow rate of cold air with respect to

the flow rate of hot air adjusted by means of the first cold air door and the first hot air door is maintained to be constant; and

5 the air flow rate in the second air passage is controlled independently by changing the passage opening area of the second air passage by means of the second cold air door and the second hot air door while the proportion of the flow rate of cold air with respect to the flow rate of hot air adjusted by means of
10 the second cold air door and the second hot air door is maintained to be constant.

2. An air conditioner for a vehicle, as set forth in claim 1, comprising:

 a first temperature setting means operated
15 by a passenger and for generating a temperature setting signal of the first zone;

 a second temperature setting means operated by a passenger and for generating a temperature setting signal of the second zone;

20 a first air flow rate adjusting means operated by a passenger and for generating a discharged air flow rate adjusting signal of the first air passage;

 a second air flow rate adjusting means operated by a passenger and for generating a discharged
25 air flow rate adjusting signal of the second air passage;

 a first door operation mechanism for operating the first cold air door and the first hot air door;

 a second door operation mechanism for
30 operating the second cold air door and the second hot air door; and

 a control means for receiving signals from the first temperature setting means, the second temperature setting means, the first air flow rate
35 adjusting means and the second air flow rate adjusting means to control the first door operation mechanism and the second door operation mechanism, wherein

the first door operation mechanism is controlled by the control means when a discharged air flow rate adjusting signal of the first air passage is generated by the first air flow rate adjusting means, so
5 that the first cold air door and the first hot air door are operated to be shifted to positions which provide passage opening areas in accordance with the increase or decrease in air flow rate specified by the discharged air flow rate adjusting signal; and wherein

10 the second door operation mechanism is controlled by the control means when a discharged air flow rate adjusting signal of the second air passage is generated by the second air flow rate adjusting means, so that the second cold air door and the second hot air door
15 are operated to be shifted to positions which provide passage opening areas in accordance with the increase or decrease in air flow rate specified by the discharged air flow rate adjusting signal.

3. An air conditioner for a vehicle, as set forth
20 in claim 2, comprising a single fan for supplying air to the first air passage and the second air passage; wherein

the control means calculates a target blowing air temperature (TAOL) of air discharged from the first air passage into the first zone and a target
25 blowing air temperature (TAOR) of air discharged from the second air passage into the second zone; wherein

the control means determines a reference air flow rate of the air flow rate from the first air passage and the second air passage by controlling the air
30 flow rate of the fan based on at least one of the target blowing air temperatures (TAOL, TAOR); wherein

the control means controls the first door operation mechanism so as to increase or decrease the reference air flow rate when a discharged air flow rate
35 adjusting signal of the first air passage is generated by the first air flow rate adjusting means; and wherein

the control means controls the second door

operation mechanism so as to increase or decrease the reference air flow rate when a discharged air flow rate adjusting signal of the second air passage is generated by the second air flow rate adjusting means.

5 4. An air conditioner for a vehicle, as set forth in claim 1, comprising a single fan for supplying air to the first air passage and the second air passage, wherein
 when air flow rate in one of the first air passage and the second air passage is changed by means of
10 the cold air door and the hot air door provided in the passage, air flow rate of the fan is corrected so that change in air flow rate in the other passage can be kept small.

 5. An air conditioner for a vehicle, as set forth
15 in claim 1, wherein each of the first cold air door, the first hot air door, the second cold air door and the second hot air door is made of a film door which comprises a film-like member and changes the passage opening area by moving each of the film-like members.

20 6. An air conditioner for a vehicle, as set forth in claim 1, wherein each of the first cold air door, the first hot air door, the second cold air door and the second hot air door is made of a board door rotatable about each axis of rotation.

25 7. An air conditioner for a vehicle, comprising:
 a first air passage through which conditioned air is discharged to a first zone in a vehicle compartment;

 a second air passage through which
30 conditioned air is discharged to a second zone in a vehicle compartment;

 a single fan for supplying air to the first air passage and the second air passage;

 a first door means for independently
35 controlling the air flow rate in the first air passage by changing the passage opening area of the first air passage; and

a second door means for independently controlling the air flow rate in the second air passage by changing the passage opening area of the second air passage.

5 8. An air conditioner for a vehicle, as set forth in claim 1, wherein

 the first zone is a left side zone in a vehicle compartment and the first air passage is a vehicle left side air passage, wherein

10 the second zone is a right side zone in a vehicle compartment and the second air passage is a vehicle right side air passage, wherein

 the air temperature and the flow rate of air discharged from the vehicle left side air passage are independently controlled by means of the first cold air door and the first hot air door, and wherein

15 the air temperature and the flow rate of air discharged from the vehicle right side air passage are independently controlled by means of the second cold air door and the second hot air door.

20 9. An air conditioner for a vehicle, as set forth in claim 7, wherein

 the first zone is a left side zone in a vehicle compartment and the first air passage is a vehicle left side air passage, wherein

25 the second zone is a right side zone in a vehicle compartment and the second air passage is a vehicle right side air passage, wherein

 the air temperature and the flow rate of air discharged from the vehicle left side air passage are independently controlled by means of the first cold air door and the first hot air door, and wherein

30 the air temperature and the flow rate of air discharged from the vehicle right side air passage are independently controlled by means of the second cold air door and the second hot air door.

35 10. An air conditioner for a vehicle, as set forth

in claim 1, comprising:

operation mechanisms each capable of
controlling the first cold air door, the first hot air
door, the second cold air door and the second hot air
5 door independently of each other;

a first temperature setting means for
generating a temperature setting signal of the first air
passage;

10 a second temperature setting means for
generating a temperature setting signal of the second air
passage;

a first air flow rate setting means for
generating an air flow rate setting signal of the first
air passage;

15 a second air flow rate setting means for
generating an air flow rate setting signal of the second
air passage; and

a control means for receiving signals from
the first temperature setting means, the second
20 temperature setting means, the first air flow rate
setting means and the second air flow rate setting means
and for controlling each of the operation mechanisms for
each of the doors independently of each other.